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## Search

## Most Recent Queries

Time Result

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|-----|--|----------|------|
| #65 | Search ("Oxytocics"[MeSH] OR "Abortifacient Agents"[MeSH]) AND (calgranulin* OR "s-100" OR "s100" OR "s 100" OR "s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte I1 protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium" OR "s100a12" OR "s100-a12" OR cgrp OR "caafi" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin) | 21:31:19 | 0    |
| #50 | Search "S100 Proteins"[MAJR] AND (calgranulin* OR "s-100" OR "s100" OR "s 100" OR "s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte I1 protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium" OR "s100a12" OR "s100-a12" OR cgrp OR "caafi" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin) AND (fetus OR fetal)          | 20:28:33 | 94   |
| #49 | Search "S100 Proteins"[MAJR] AND (calgranulin* OR "s-100" OR "s100" OR "s 100" OR "s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte I1 protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium" OR "s100a12" OR "s100-a12" OR cgrp OR "caafi" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin)                               | 20:27:47 | 2978 |
| #48 | Search "S100 Proteins"[MeSH] AND (calgranulin* OR "s-100" OR "s100" OR "s 100" OR "s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte I1 protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium" OR "s100a12" OR "s100-a12" OR cgrp OR "caafi" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin)                               | 20:27:24 | 7204 |
| #45 | Search (calgranulin* OR "s-100" OR "s100" OR "s 100" OR "s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte I1 protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium" OR "s100a12" OR "s100-a12" OR cgrp OR "caafi" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin) AND amnio*  | 20:05:48 | 52   |
| #44 | Search (calgranulin* OR "s-100" OR "s100" OR "s 100" OR "s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte I1 protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium") and ("s100a12" OR "s100-a12" OR cgrp OR "caafi" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin) AND amnio*   | 20:04:29 | 6    |
| #42 | Search (calgranulin* OR "s-100" OR "s100" OR "s 100") and ("s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte I1 protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR  | 20:02:33 | 2    |

- "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium") and ("s100a12" OR "s100-a12" OR cgrp OR "caaf1" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin) AND amnio\*
- [#37](#) Related Articles for PubMed (Select 8718672) sort by: PublicationDate 19:49:00 [171](#)
- [#33](#) Search (calgranulin\* OR "s-100" OR "s100" OR "s 100") and ("s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte II protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium") and ("s100a12" OR "s100-a12" OR cgrp OR "caaf1" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin) 19:44:01 [131](#)
- [#32](#) Search (calgranulin\$ OR "s-100" OR "s100" OR "s 100") and ("s100a8" OR "s100-a8" OR "60b8 b" OR "60b8-b" OR "60b8b" OR "cabp-p8" OR "cabp p8" OR "cabpp8" OR "cystic fibrosis antigen" OR "leukocyte II protein" OR "macrophage related protein 8" OR "macrophage related protein-8" OR "mrp-8" OR "mrp8" OR "mrp 8" OR "myeloid calcium") and ("s100a12" OR "s100-a12" OR cgrp OR "caaf1" OR enrage OR "en-rage" OR p6 OR "calgranulin related protein" OR calcitermin) 19:42:48 [134](#)
- [#30](#) Search ("Calcitonin Gene-Related Peptide"[MeSH] OR "Receptors, Calcitonin Gene-Related Peptide"[MeSH]) AND ("Amniotic Fluid"[MeSH] OR "Amniocentesis"[MeSH]) 19:17:27 [2](#)
- [#24](#) Search "S100 Proteins"[MeSH] AND ("Amniotic Fluid"[MeSH] OR "Amniocentesis"[MeSH]) 18:57:33 [27](#)
- [#19](#) Search "S100 Proteins"[MAJR] AND ("Amniotic Fluid"[MeSH] OR "Amniocentesis"[MeSH]) 18:54:39 [20](#)
- [#15](#) Search "S100 Proteins"[MAJR] 18:53:39 [3062](#)
- [#14](#) Search "S100 Proteins"[MeSH] 18:53:27 [7778](#)

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Apr 4 2007 12:47:27

## UniProtKB/Swiss-Prot entry P05109

### Entry information

Entry name **S10A8\_HUMAN**  
Primary accession number **P05109**  
Secondary accession numbers **Q5SY70 Q9UC92 Q9UCJ0**  
Integrated into Swiss-Prot on **August 13, 1987**  
Sequence was last modified on **January 1, 1988 (Sequence version 1)**  
Annotations were last modified on **March 20, 2007 (Entry version 87)**

### Name and origin of the protein

Protein name **Protein S100-A8**  
Synonyms **S100 calcium-binding protein A8  
Calgranulin-A  
Migration inhibitory factor-related protein 8  
MRP-8  
Cystic fibrosis antigen  
CFAG  
P8  
Leukocyte L1 complex light chain  
Calprotectin L1L subunit  
Urinary stone protein band A**  
Gene name **Name: S100A8**  
Synonyms: CAGA, MRP8  
From **Homo sapiens (Human) [TaxID: 9606]**  
Taxonomy **Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria  
Euarchontoglires; Primates; Haplorrhini; Catarrhini; Hominidae; Homo.**

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TISSUE=Skeletal muscle;  
DOI=10.1101/gr.2596504; PubMed=15489334  
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TISSUE=Keratinocyte;  
PubMed=1286667  
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## Comments

- **FUNCTION:** Expressed by macrophages in chronic inflammations. Also expressed in epithelial cells constitutively or induced during dermatoses. May interact with components of the intermediate filaments in monocytes and epithelial

- cells.
- **SUBUNIT:** Homodimer.
  - **MISCELLANEOUS:** Binds two calcium ions per molecule with an affinity similar to that of the S100 proteins.
  - **SIMILARITY:** Belongs to the S-100 family.
  - **SIMILARITY:** Contains 2 EF-hand domains.

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## Cross-references

Sequence databases	
EMBL	Y00278; CAA68390.1; -, mRNA. X06234; CAA29580.1; -, mRNA. M21005; AAA36327.1; -, Genomic_DNA. CR407674; CAG28602.1; -, mRNA. BT007378; AAP36042.1; -, mRNA. AL591704; CAI19497.1; -, Genomic_DNA. BC005928; AAH05928.1; -, mRNA.
PIR	A31848; BCHUCF.
UniGene	Hs.416073
3D structure databases	
PDB	1MR8; X-ray; A/B=1-93. 1XK4; X-ray; A/B/E/F/I/J=1-93.
Protein-protein interaction databases	
DIP	DIP:1165N; -.
2D gel databases	
SWISS-2DPAGE	P05109; HUMAN.
Aarhus/Ghent-2DPAGE	1003; IEF.
PMMA-2DPAGE	P05109; -.
Organism-specific gene databases	
H-InvDB	HIX0001079; -.
HGNC	HGNC:10498; S100A8.
GeneCards	S100A8.
GeneLynx	S100A8; Homo sapiens.
GenAtlas	S100A8.
HPA	CAB002791; -.
MIM	123885; gene.
Gene expression databases	
CleanEx	HGNC:10498; S100A8.
ArrayExpress	P05109; -.
GermOnline	ENSG00000143546; Homo sapiens.
Ontologies	
GO	GO:0005509; Molecular function: calcium ion binding ( <i>traceable author statement from ProtInc</i> ). GO:0006954; Biological process: inflammatory response ( <i>traceable author statement from ProtInc</i> ).
Family and domain databases	
InterPro	IPR011992; EF-Hand_type. IPR002048; EF_hand_Ca_bd. IPR001751; S100_Ca_bd. IPR013787; S100_Ca_bd_sub.

Gene3D	G3DSA:1.10.238.10; EF-Hand_type; 1.
Pfam	PF00036; efhand; 1.
ProDom	PD003407; CaBP_S100; 1. PD000012; EF-hand; 1.
PROSITE	PS00018; EF_HAND_1; 1. PS50222; EF_HAND_2; 1. PS00303; S100_CABP; 1. PROSITE graphical view of domain structure (profiles).
Genome annotation databases	
Ensembl	ENSG00000143546; Homo sapiens.
KEGG	hsa:6279; -.
Other	
RZPD- ProtExp	Clones: G0188, IOH7407, RZPDo834A1216, RZPDo839A1269
Implicit links to	SOURCE; HOVERGEN; BLOCKS; ProtoNet; ModBase; UniRef.

### Keywords

3D-structure; Calcium; Direct protein sequencing; Repeat.

### Features

Key	From	To	Length	Description	FTId
CHAIN	1	93	93	Protein S100-A8.	PRO_0000143993
DOMAIN	12	47	36	EF-hand 1.	
DOMAIN	46	81	36	EF-hand 2.	
CA_BIND	20	33	14	1; low affinity.	
CA_BIND	59	70	12	2; high affinity.	
CONFLICT	80	93		VAAHKKSHKEESKE -> WQPTKKAMKKATKSS (in Ref. 1; CAA68390).	
HELIX	4	20	17		
STRAND	22	25	4		
HELIX	31	41	11		
HELIX	44	47	4		
HELIX	51	58	8		
STRAND	63	66	4		
HELIX	68	86	19		

### Sequence information

Length: **93 AA** [This is the length of the unprocessed precursor]  
Molecular weight: **10835 Da** [This is the MW of the unprocessed precursor]  
CRC64: **78F589140B9CE166** [This is a checksum on the sequence]

```

      10      20      30      40      50      60
MLTELEKALN SIIDVYHKYS LIKGNFHAVY RDDLLKLLLET ECPQYIRKKG ADVWFKELDI

      70      80      90
NTDGAVNFQE FLILVIKMGV AAHKKSHKEES HKE

```

# UniProtKB/Swiss-Prot entry P80511

## Entry information

Entry name **S10AC\_HUMAN**  
 Primary accession number **P80511**  
 Secondary accession numbers **P83219 Q5SY66**  
 Integrated into Swiss-Prot on **October 1, 1996**  
 Sequence was last modified on **January 23, 2007 (Sequence version 2)**  
 Annotations were last modified on **March 20, 2007 (Entry version 70)**

## Name and origin of the protein

Protein name **Protein S100-A12**  
 Synonyms **S100 calcium-binding protein A12  
 Calgranulin-C  
 CAGC  
 CGRP  
 Neutrophil S100 protein  
 Calcium-binding protein in amniotic fluid 1  
 CAAF1  
 p6**  
 Contains **Calcitermin**  
 Gene name **Name: S100A12**  
 From **Homo sapiens (Human) [TaxID: 9606]**  
 Taxonomy **Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria  
 Euarchontoglires; Primates; Haplorrhini; Catarrhini; Hominidae; Homo.**

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 DOI=10.1038/nature04727; PubMed=16710414  
 Gregory S.G., Barlow K.F., McLay K.E., Kaul R., Swarbreck D., Dunham A., Scott C.E., Howe K.L., Woodfine K., Spence C.C.A., Jones M.C., Gillson C., Searle S., Zhou Y., Kokocinski F., McDonald L., Evans R., Phillips K., Atkinson A., Cooper R., Jones C., Hall R.E., Andrews T.D., Lloyd C., Ainscough R., Almeida J.P., Ambrose K.D., Anderson F., Andrew R.W., Ashwell R.I.S., Aubin K., Babbage A.K., Bagguley C.L., Bailey J., Beasley H., Bethel G., Bird C.P., Bray-Allen S., Brown J.Y., Brown A.J., Buckley D., Burton J., Bye J., Carder C., Chapman J.C., Clark S.Y., Clarke G., Clee C., Copley V., Collis R.E., Corby N., Coville G.J., Davies J., Deadman R., Dunn M., Earthrowl M., Ellington A.G., Errington H., Frankish A., Frankland J., French L., Garner P., Garnett J., Gay L., Ghorri M.R.J., Gibson R., Gilby L.M., Gillett W., Glithero R.J., Grafham D.V., Griffiths C., Griffiths-Jones S., Grocock R., Hammond S., Harrison E.S.I., Hart E., Haugen E., Heath P.D., Holmes S., Holt K., Howden P.J., Hunt A.R., Hunt S.E., Hunter G., Isherwood J., James R., Johnson C., Johnson D., Joy A., Kay M., Kershaw J.K., Kibukawa M., Kimberley A.M., King A., Knights A.J., Lad H., Laird G., Lawlor S., Leongamornle D.A., Lloyd D.M., Loveland J., Lovell J., Lush M.J., Lyne R., Martin S., Mashreghi-Mohammadi M., Matthews L., Matthews N.S.W., McLaren S., Milne S., Mistry S., Moore M.J.F., Nickerson T., O'Dell C.N., Oliver K., Palmeiri A., Palmer S.A., Parker A., Patel D., Pearce A.V., Peck A.I., Pelan S., Phelps K., Phillimore B.J., Plumb R., Rajan J., Raymond C., Rouse G., Saenphimmachak C., Sehra H.K., Sheridan E., Shownkeen R., Sims S., Skuce C.D., Smith M., Steward C., Subramanian S., Sycamore N., Tracey A., Tromans A., Van Helmond Z., Wall M., Wallis J.M., White S., Whitehead S.L., Wilkinson J.E., Willey D.L., Williams H., Wilming L., Wray P.W., Wu Z., Coulson A., Vaudin M., Sulston J.E., Durbin R., Hubbard T., Wooster R., Dunham I., Carter N.P., McVean G., Ross M.T., Harrow J., Olson M.V., Beck S., Rogers J.,

Bentley D.R.;

"The DNA sequence and biological annotation of human chromosome 1.";  
Nature 441:315-321(2006).

[4] NUCLEOTIDE SEQUENCE [LARGE SCALE MRNA].

TISSUE=Blood;

DOI=10.1101/gr.2596504; PubMed=15489334

The MGC Project Team;

"The status, quality, and expansion of the NIH full-length cDNA project: the Mammalian Gene Collection (MGC).";  
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DOI=10.1006/bbrc.1996.0616; PubMed=8619876

Marti T., Erttmann K.D., Gallin M.Y.;

"Host-parasite interaction in human onchocerciasis: identification and sequence analysis of a novel human calgranulin.";  
Biochem. Biophys. Res. Commun. 221:454-458(1996).

[6] PROTEIN SEQUENCE OF 2-92.

TISSUE=Neutrophil;

DOI=10.1006/bbrc.1996.1144; PubMed=8769108

Ilg E.C., Troxler H., Buergisser D.M., Kuster T., Markert M., Guignard F., Hunziker P., Birchler N., Heizmann C.W.;

"Amino acid sequence determination of human S100A12 (P6, calgranulin C, CGRP, CAAF1) by tandem mass spectrometry.";

Biochem. Biophys. Res. Commun. 225:146-150(1996).

[7] PROTEIN SEQUENCE OF 2-21.

PubMed=7626002

Guignard F., Mauel J., Markert M.;

"Identification and characterization of a novel human neutrophil protein related to the S100 family.";  
Biochem. J. 309:395-401(1995).

[8] PROTEIN SEQUENCE OF 78-92, ANTIMICROBIAL ACTIVITY, AND MASS SPECTROMETRY.

TISSUE=Nasal mucus;

DOI=10.1016/S0014-5793(01)02731-4; PubMed=11522286

Cole A.M., Kim Y.-H., Tahk S., Hong T., Weis P., Waring A.J., Ganz T.;

"Calcitermin, a novel antimicrobial peptide isolated from human airway secretions.";  
FEBS Lett. 504:5-10(2001).

[9] X-RAY CRYSTALLOGRAPHY (1.95 ANGSTROMS).

DOI=10.1107/S0907444490001458X; PubMed=11134923

Moroz O.V., Antson A.A., Murshudov G.N., Maitland N.J., Dodson G.G., Wilson K.S., Skibshoj I., Lukanidin E.M.,  
Bronstein I.B.;

"The three-dimensional structure of human S100A12.";  
Acta Crystallogr. D 57:20-29(2001).

## Comments

- **FUNCTION:** Calcitermin possesses antifungal activity against *C.albicans* and is also active against *E.coli* and *P.aeruginosa* but not *L.monocytogenes* and *S.aureus*.
- **SUBUNIT:** Homodimer.
- **TISSUE SPECIFICITY:** Monocytes and lymphocytes.
- **MASS SPECTROMETRY:** MW=10444; METHOD=Electrospray; RANGE=2-92; NOTE=Ref.8.
- **MASS SPECTROMETRY:** MW=1688.9; METHOD=MALDI; RANGE=78-92; NOTE=Ref.8.
- **SIMILARITY:** Belongs to the S-101 family.
- **SIMILARITY:** Contains 2 EF-hand domains.

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## Cross-references

Sequence databases	
	X97859; CAA66453.1; -; mRNA.
	X98288; CAA66934.1; -; Genomic_DNA.
	X98289; CAA66934.1; JOINED; Genomic_DNA.
	X98290; CAA66934.1; JOINED; Genomic_DNA.
	X98289; CAB94792.1; -; Genomic_DNA.



EMBL	X98290; CAB94792.1; JOINED; Genomic_DNA. D49549; BAA08497.1; -; mRNA. D83664; BAA12036.1; -; mRNA. D83657; BAA12030.1; -; Genomic_DNA. AL591704; CAI19495.1; -; Genomic_DNA. BC070294; AAH70294.1; -; mRNA.
PIR	JC4712; JC4712.
UniGene	Hs.19413
3D structure databases	
PDB	1E8A; X-ray; A/B=1-92. 1GQM; X-ray; A/B/C/D/E/F/G/H/I/J/K/L=1-92. 1ODB; X-ray; A/B/C/D/E/F=1-92.
Organism-specific gene databases	
HGNC	HGNC:10489; S100A12.
GeneCards	S100A12.
GeneLynx	S100A12; Homo sapiens.
GenAtlas	S100A12.
MIM	603112; gene.
Gene expression databases	
CleanEx	HGNC:10489; S100A12.
ArrayExpress	P80511; -.
GermOnline	ENSG00000163221; Homo sapiens.
Ontologies	
GO	GO:0005829; Cellular component: cytosol ( <i>traceable author statement from ProtInc</i> ). GO:0005626; Cellular component: insoluble fraction ( <i>traceable author statement from ProtInc</i> ). GO:0005509; Molecular function: calcium ion binding ( <i>traceable author statement from ProtInc</i> ). GO:0008270; Molecular function: zinc ion binding ( <i>traceable author statement from UniProtKB</i> ). GO:0050832; Biological process: defense response to fungus ( <i>inferred from direct assay from UniProtKB</i> ). GO:0006954; Biological process: inflammatory response ( <i>traceable author statement from ProtInc</i> ). GO:0006805; Biological process: xenobiotic metabolic process ( <i>inferred from direct assay from UniProtKB</i> ).
Family and domain databases	
InterPro	IPR011992; EF-Hand_type. IPR002048; EF_hand_Ca_bd. IPR001751; S100_Ca_bd. IPR013787; S100_Ca_bd_sub.
Gene3D	G3DSA:1.10.238.10; EF-Hand_type; 1.
Pfam	PF00036; efhand; 1.
ProDom	PD003407; CaBP_S100; 1. PD000012; EF-hand; 1.
PROSITE	PS00018; EF_HAND_1; FALSE_NEG. PS50222; EF_HAND_2; 1. PS00303; S100_CABP; 1. PROSITE graphical view of domain structure (profiles).
Genome annotation databases	
Ensembl	ENSG00000163221; Homo sapiens.
KEGG	hsa:6283; -.
Other	
RZPD-ProtExp	Clones: I0294, IOH40815
Implicit links to	SOURCE; HOVERGEN; BLOCKS; ProtoNet; ModBase; UniRef.

**Keywords**

3D-structure; Antibiotic; Antimicrobial; Calcium; Direct protein sequencing; Fungicide; Metal-binding; Repeat; Zinc.

### Features

Key	From	To	Length	Description	FTId
INIT_MET	1	1		Removed.	
CHAIN	2	92	91	Protein S100-A12.	PRO_0000045383
PEPTIDE	78	92	15	Calcitermin.	PRO_0000004774
DOMAIN	13	48	36	EF-hand 1.	
DOMAIN	49	84	36	EF-hand 2.	
CA_BIND	19	32	14	1; low affinity (By similarity).	
CA_BIND	62	73	12	2; high affinity (By similarity).	
HELIX	2	18	17		
STRAND	20	22	3		
HELIX	29	39	11		
TURN	41	43	3		
TURN	45	48	4		
HELIX	50	60	11		
HELIX	70	89	20		

### Sequence information

Length: **92 AA** [This is the length of the unprocessed precursor]

Molecular weight: **10575 Da** [This is the MW of the unprocessed precursor]

CRC64: **52AF75A31BDC222A** [This is a checksum on the sequence]

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MTKLEEHLEG IVNIFHQYSV RKGHFDTL SK GELKQLLTKE LANTIKNIKD KAVIDEIFQG

      70      80      90
LDANQDEQVD FQEFISLVAI ALKAAHYH TH KE
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EBI Uniprot UniSave

The UniProtKB Sequence/Annotation Version Archive (UniSave) is a repository of UniProtKB/Swiss-Prot and UniProtKB/TrE versions.

Primary accession number or entry name: Date:  day-month-year (e.g. 30-11-1998 or 30-NOV-1998) or year-month-day.

&lt;&lt; Earlier Later &gt;&gt;

&lt;&lt; Earlier Later &gt;&gt;

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P80511 12-DEC-2006

P80511 23-JAN-2007

ID S10AC\_HUMAN Reviewed; 92 AA.  
ID S10AC\_HUMAN Reviewed; 91 AA.  
AC P80511; P83219;  
DT 01-OCT-1996, integrated into UniProtKB/Swiss-Prot.  
DT 23-JAN-2007, sequence version 2.  
DT 23-JAN-2007, entry version 67.  
DT 01-OCT-1996, sequence version 1.  
DT 12-DEC-2006, entry version 66.  
DE Protein S100-A12 (S100 calcium-binding protein A12) (Calgranulin-C)  
DE (CAGC) (CGRP) (Neutrophil S100 protein) (Calcium-binding protein in  
DE amniotic fluid 1) (CAAF1) (p6) [Contains: Calcitermin].  
GN Name=S100A12;  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini;  
OC Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP NUCLEOTIDE SEQUENCE [GENOMIC DNA / MRNA].  
RX MEDLINE=97138564; PubMed=8985590; DOI=10.1016/S0143-4160(96)90087-1;  
RA Wicki R., Marenholz I., Mischke D., Schaefer B.W., Heizmann C.W.;  
RT "Characterization of the human S100A12 (calgranulin C, p6, CAAF1,  
RT CGRP) gene, a new member of the S100 gene cluster on chromosome  
RT 1q21.";  
RL Cell Calcium 20:459-464(1996).  
RN [2]  
RP NUCLEOTIDE SEQUENCE [GENOMIC DNA / MRNA].  
RX MEDLINE=96192053; PubMed=8619860; DOI=10.1006/bbrc.1996.0600;  
RA Yamamura T., Hitomi J., Nagasaki K., Suzuki M., Takahashi E.,  
RA Saito S., Tsukada T., Yamaguchi K.;  
RT "Human CAAF1 gene -- molecular cloning, gene structure, and chromosome  
RT mapping.";  
RL Biochem. Biophys. Res. Commun. 221:356-360(1996).  
RN [3]  
RP NUCLEOTIDE SEQUENCE [LARGE SCALE MRNA].  
RC TISSUE=Blood;  
RX PubMed=15489334; DOI=10.1101/gr.2596504;  
RG The MGC Project Team;  
RT "The status, quality, and expansion of the NIH full-length cDNA  
RT project: the Mammalian Gene Collection (MGC).";  
RL Genome Res. 14:2121-2127(2004).  
RN [4]  
RP PROTEIN SEQUENCE OF 2-92.  
RP PROTEIN SEQUENCE.  
RX MEDLINE=96192069; PubMed=8619876; DOI=10.1006/bbrc.1996.0616;  
RA Marti T., Erttmann K.D., Gallin M.Y.;  
RT "Host-parasite interaction in human onchocerciasis: identification and  
RT sequence analysis of a novel human calgranulin.";  
RL Biochem. Biophys. Res. Commun. 221:454-458(1996).  
DN 151

11 MAY 2007

RP PROTEIN SEQUENCE OF 2-92.  
RN [4]  
RP PROTEIN SEQUENCE.  
RC TISSUE=Neutrophil;  
RX MEDLINE=96332419; PubMed=8769108; DOI=10.1006/bbrc.1996.1144;  
RA Ilg E.C., Troxler H., Buergisser D.M., Kuster T., Markert M.,  
RA Guignard F., Hunziker P., Birchler N., Heizmann C.W.;  
RT "Amino acid sequence determination of human S100A12 (P6, calgranulin  
RT C, CGRP, CAAF1) by tandem mass spectrometry.";  
RL Biochem. Biophys. Res. Commun. 225:146-150(1996).  
RN [5]  
RP NUCLEOTIDE SEQUENCE [LARGE SCALE MRNA].  
RC TISSUE=Blood;  
RX PubMed=15489334; DOI=10.1101/gr.2596504;  
RG The MGC Project Team;  
RT "The status, quality, and expansion of the NIH full-length cDNA  
RT project: the Mammalian Gene Collection (MGC).";  
RL Genome Res. 14:2121-2127(2004).  
RN [6]  
RP PROTEIN SEQUENCE OF 2-21.  
RP PROTEIN SEQUENCE OF 1-20.  
RX MEDLINE=95351965; PubMed=7626002;  
RA Guignard F., Maue J., Markert M.;  
RT "Identification and characterization of a novel human neutrophil  
RT protein related to the S100 family.";  
RL Biochem. J. 309:395-401(1995).  
RN [7]  
RP PROTEIN SEQUENCE OF 78-92, ANTIMICROBIAL ACTIVITY, AND MASS  
RP PROTEIN SEQUENCE OF 77-91, ANTIMICROBIAL ACTIVITY, AND MASS  
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RX MEDLINE=21413725; PubMed=11522286; DOI=10.1016/S0014-5793(01)02731-4;  
RA Cole A.M., Kim Y.-H., Tahk S., Hong T., Weis P., Waring A.J., Ganz T.;  
RT "Calcitermin, a novel antimicrobial peptide isolated from human airway  
RT secretions.";  
RL FEBS Lett. 504:5-10(2001).  
RN [8]  
RP X-RAY CRYSTALLOGRAPHY (1.95 ANGSTROMS).  
RX MEDLINE=21065388; PubMed=11134923; DOI=10.1107/S090744490001458X;  
RA Moroz O.V., Antson A.A., Murshudov G.N., Maitland N.J., Dodson G.G.,  
RA Wilson K.S., Skibshoj I., Lukanidin E.M., Bronstein I.B.;  
RT "The three-dimensional structure of human S100A12.";  
RL Acta Crystallogr. D 57:20-29(2001).  
CC -!- FUNCTION: Calcitermin possesses antifungal activity against  
CC C.albicans and is also active against E.coli and P.aeruginosa but  
CC not L.monocytogenes and S.aureus.  
CC -!- SUBUNIT: Homodimer.  
CC -!- TISSUE SPECIFICITY: Monocytes and lymphocytes.  
CC -!- MASS SPECTROMETRY: MW=10444; METHOD=Electrospray; RANGE=2-92;  
CC -!- MASS SPECTROMETRY: MW=10444; METHOD=Electrospray; RANGE=1-91;  
CC NOTE=Ref.7.  
CC -!- MASS SPECTROMETRY: MW=1688.9; METHOD=MALDI; RANGE=78-92;  
CC -!- MASS SPECTROMETRY: MW=1688.9; METHOD=MALDI; RANGE=77-91;  
CC NOTE=Ref.7.  
CC -!- SIMILARITY: Belongs to the S-101 family.  
CC -!- SIMILARITY: Belongs to the S-100 family.  
CC -!- SIMILARITY: Contains 2 EF-hand domains.  
CC -----  
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CC Distributed under the Creative Commons Attribution-NoDerivs License  
CC -----  
DR EMBL; X97859; CAA66453.1; -; mRNA.  
DR EMBL; X98288; CAA66934.1; -; Genomic\_DNA.  
DR EMBL; X98289; CAA66934.1; JOINED; Genomic\_DNA.  
DR EMBL; X98290; CAA66934.1; JOINED; Genomic\_DNA.

DR EMBL; X98289; CAB94792.1; -; Genomic\_DNA.

DR EMBL; X98290; CAB94792.1; JOINED; Genomic\_DNA.

DR EMBL; D49549; BAA08497.1; -; mRNA.

DR EMBL; D83664; BAA12036.1; -; mRNA.

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DR EMBL; BC070294; AAH70294.1; -; mRNA.

DR PIR; JC4712; JC4712.

DR UniGene; Hs.19413; -.

DR PDB; 1E8A; X-ray; A/B=1-92.

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DR PDB; 1ODB; X-ray; A/B/C/D/E/F=1-92.

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DR KEGG; hsa:6283; -.

DR HGNC; HGNC:10489; S100A12.

DR MIM; 603112; gene.

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DR GermOnline; ENSG00000163221; Homo sapiens.

DR RZPD-ProtExp; I0294; -.

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DR GO; GO:0005829; C:cytosol; TAS:ProtInc.

DR GO; GO:0005626; C:insoluble fraction; TAS:ProtInc.

DR GO; GO:0005509; F:calcium ion binding; TAS:ProtInc.

DR GO; GO:0008270; F:zinc ion binding; TAS:UniProtKB.

DR GO; GO:0050832; P:defense response to fungus; IDA:UniProtKB.

DR GO; GO:0006954; P:inflammatory response; TAS:ProtInc.

DR GO; GO:0006805; P:xenobiotic metabolism; IDA:UniProtKB.

DR InterPro; IPR011992; EF-Hand\_type.

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DR InterPro; IPR001751; S100\_Ca\_bd.

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DR ProDom; PD003407; CaBP\_S100; 1.

DR ProDom; PD000012; EF-hand; 1.

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DR PROSITE; PS00222; EF\_HAND\_2; 1.

DR PROSITE; PS00303; S100\_CABP; 1.

KW 3D-structure; Antibiotic; Antimicrobial; Calcium;

KW Direct protein sequencing; Fungicide; Metal-binding; Repeat; Zinc.

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FT CHAIN 2 92 Protein S100-A12.

FT INIT\_MET 0 0

FT CHAIN 1 91 Protein S100-A12.

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FT PEPTIDE 78 92 Calcitermin.

FT PEPTIDE 77 91 Calcitermin.

FT /FTId=PRO\_0000004774.

FT DOMAIN 13 48 EF-hand 1.

FT DOMAIN 49 84 EF-hand 2.

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FT CA\_BIND 62 73 2; high affinity (By similarity).

FT HELIX 3 19

FT TURN 20 20

FT STRAND 21 24

FT TURN 25 26

FT HELIX 30 40

FT TURN 42 44

FT TURN 46 49

FT HELIX 51 61

FT TURN 63 64

FT HELIX 71 87

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FT DOMAIN 12 47 EF-hand 1.

FT DOMAIN 48 83 EF-hand 2.

FT CA\_BIND 18 31 1; low affinity (By similarity).

FT CA\_BIND 61 72 2; high affinity (By similarity).

FT HELIX 2 18

FT TURN 19 19

FT STRAND 20 23

FT TURN 24 25

FT HELIX 29 39

FT TURN 41 43

FT TURN 45 48

FT HELIX 50 60

FT TURN 62 63

FT HELIX 70 86

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DANQDEQVDF QEFISLVAIA LKAAHYHTHK E

//

100.000% identity (Smith-Waterman score: 577)

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